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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/972,911	Applicant(s) AU ET AL.	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☒ Claim(s) *14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the steps in flowchart fig. 6 do not match the description in specification page 19, line 8 to page 20, line 15. Specifically, a step is missing in the drawing that is described in the specification; therefore, the element indicators in the drawing (characters B-E) do not match the description. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 14 is objected to because of the following informalities: the phrase "further comprising providing comprise" is grammatically incorrect.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 4 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 4, the specification discloses service nodes and access nodes connecting to photonic cross-connect element, but does not disclose that the service nodes and access nodes are included in photonic cross-connect elements as claimed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 19 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. ("Signaling Requirements at the Optical UNI"; Zhang et al.; Internet Draft, 14 July 2000; http://www.cse.ohio-state.edu/~jain/ietf/ftp/draft-bala-mpls-optical-uni-signaling-00.txt).

Regarding claim 19, Zhang et al. disclose an O-UNI server adaptable for use virtual photonics switching system ("UNI-N" disclosed in section 3 "Introduction"), the O-UNI server comprising: at least one memory for storing information pertaining to a plurality of network

elements ("directory service" disclosed in section 4 "Optical Network Services" which inherently requires a memory to implement) and a communication circuit for receiving a connectivity request from a first registered node for connection with a second registered node and connection logic for determining compatibility of the first and second nodes, said communications circuit providing instructions to the network elements upon verifying compatibility to search for an end-to-end wavelength path and establish the connection between the first registered node and the second registered node (section 4 "Optical Network Services" and section 6.2. "UNI Signaling (Abstract) Messages").

Regarding claim 21, Zhang et al. disclose the O-UNI server of claim 19, wherein the connection logic determines technology compatibility (section 3.4 "Optical Network Services" and section 3.4.1 "Light path creation" and the disclosed "user groups").

Regarding claim 22, Zhang et al. disclose the O-UNI server of claim 19 further comprising fault management tools for determining when an error has occurred in establishing a connection (section 6.1 "UNI Control Channel").

Regarding claim 23, Zhang et al. disclose the O-UNI server of claim 19, further comprising registration tools for registering nodes (section 4 "Optical Network Services") and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength (section 6.4.1 "Lightpath Create Request" and section 6.4.2 "Lightpath Create Response").

Regarding claim 24, Zhang et al. disclose the O-UNI server of claim 19, further comprising address management tools for address resolution and assignment (section 4 "Optical Network Services", section 5 "Identification of Lightpath Termination Points and User Groups", and section 6.1 "UNI Control Channel").

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metz ("IP Over Optical"; Chris Metz; IEEE Internet Computing, November-December 2000; http://www.cisco.com/warp/public/779/servpro/solutions/optical/docs/ip_optical2-01.pdf,) in view of Zhang et al. ("Signaling Requirements at the Optical UNI"; Zhang et al.; Internet Draft, 14 July 2000; http://www.cse.ohio-state.edu/~jain/ietf/ftp/draft-bala-mpls-optical-uni-signaling-00.txt).

Regarding claim 1, Metz discloses a virtual photonics switching system, the system comprising, multiple photonics cross-connect network elements and optical fibers connecting the network elements (fig. 2, element Overlay Model and page 78, section "Routing at the Optical Layer" and page 79, section "Architectural Models"); and an O-UNI interface used in the overlay model optical network between the optical clients and the optical network (page 79, section "Architectural Models" and page 80, section "Optical UNI"). Metz discloses the OXC as a wavelength router compatible with DWDM (page 78, section "Routing at the Optical Layer") and a dynamic UNI where the signaling information is sent over the UNI between client and OXC for a client to establish connection with a target client, for invoking light-path creation/modification/deletion, for status inquiry and for registration of clients with their adjacent OXCs (page 80, col. 3, paragraph 2, which is a disclosure of an inherent memory at the OXC for storing information pertaining to said network elements (e.g. registration information) and a disclosure of a communication circuit receiving a connectivity request from a first registered node for connection with a second registered node). Metz does not explicitly describe an O-UNI

server including connection logic for determining compatibility of the first and second nodes, and said communications circuit providing instructions to the network elements upon verifying compatibility to search for an end-to-end wavelength path and establish the connection between the first registered node and the second registered node. However, Zhang et al. disclose details of the Optical UNI interface and protocol (section 3 "Introduction" and fig. 1) and disclose an optical-network-side UNI entity ("UNI-N"), i.e. an O-UNI server, at the OXC (section 3.3 "Provisioned Interface"), determining compatibility of first and second clients to be connected, and searching for and establishing an end-to-end lightpath through the OXC network between the first and second clients (section 4 "Optical Network Services" and section 6.2. "UNI Signaling (Abstract) Messages"). It would have been obvious to one of ordinary skill at the time of the invention to implement the Optical UNI teachings of Zhang et al. for the UNI interface of Metz, to provide the advantage of an Optical UNI consistent with industry standardization efforts including multi-vendor operation as taught by Zhang et al. (section 3 "Introduction").

Regarding claim 2, the combination of Metz and Zhang et al. disclose the system of claim 1, and that the optical network has it's own set of provisioning tools and network management applications (Metz: page 79, col. 2, top paragraph). The provisioning tools and network management applications are not described in detail; however it would have been obvious to one of ordinary skill in the art at the time of the invention to use a web menu for such provisioning tools and management applications, since HTML and web menu interfaces are well known for use as application interfaces for networks.

Regarding claim 3, the combination of Metz and Zhang et al. disclose the system of claim 1, wherein the connection logic determines technology compatibility (Zhang et al.: section 3.4 "Optical Network Services" and section 3.4.1 "Light path creation" and the disclosed "user groups").

Regarding claim 4, the combination of Metz and Zhang et al. disclose the system of claim 1, wherein the multiple photonics cross-connect elements include photonic switches (Metz: page 78, section "Routing at the Optical Layer").

Regarding claim 5, the combination of Metz and Zhang et al. disclose the system of claim 4. Regarding the limitation wherein the service nodes comprise core routers or video servers, the specification discloses that the services nodes "can be core routers or video servers or any other appropriate element" (specification page 9, lines 1-3). This is not a closure of criticality for the limitation of service node type. Absent any teaching of criticality, the limitation of service node type would have been a result of obvious engineering design choice.

Regarding claim 6, the combination of Metz and Zhang et al. disclose the system of claim 4, wherein the access nodes comprise multiplexers or edge routers (Metz: fig. 2 "Overlay model" and page 79, section "Architectural Models").

Regarding claim 7, the combination of Metz and Zhang et al. disclose the system of claim 1, wherein the O-UNI server further comprises fault management tools for determining when an error has occurred in establishing a connection (Zhang et al.: section 6.1 "UNI Control Channel").

Regarding claim 8, the combination of Metz and Zhang et al. disclose the system of claim 1, wherein the photonics network elements, the optical fibers, and the O-UNI server comprise a protocol agnostic private network provided that communicating nodes use an identical communication protocol (Metz: page 78, section "Routing at the Optical Layer" and Zhang et al.: section 4.2 "Optical Network Services", e.g. "closed user groups, or virtual private networks").

Regarding claim 9, the combination of Metz and Zhang et al. disclose the system of claim 1, further comprising registration tools for registering nodes (Metz: page 80, col. 3,

paragraph 2) and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength (Zhang et al.: section 6.4.1 "Lightpath Create Request" and section 6.4.2 "Lightpath Create Response").

Regarding claim 10, Metz discloses a method for establishing automatic service connectivity in a network between multiple network elements, each of said network elements utilizing routing and distribution protocols to discover its neighbors and establish a topology and optical fibers connecting the network elements, each optical fiber carrying multiple wavelengths of signals (fig. 2, element Overlay Model and page 78, section "Routing at the Optical Layer", page 79, section "Architectural Models" and page 80, section "Optical UNI"), the method comprising: storing information pertaining to each of said network elements, registering network elements by collecting information about each network element, and receiving a connectivity request from a first registered node for connection with a second registered node (page 80, col. 3, paragraph 2, which is a disclosure of an inherent memory at the OXC for storing information pertaining to said network elements (e.g. registration information) and a disclosure of a communication circuit receiving a connectivity request from a first registered node for connection with a second registered node). Metz does not explicitly describe a server storing the network element information or determining compatibility of the first and second nodes, and instructing network elements upon verifying compatibility to search for an end-to-end wavelength path and establish the connection between the first registered node and the second registered node. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Zhang et al. with Metz as described above for claim 1.

Regarding claim 11, the combination of Metz and Zhang et al. disclose the method of claim 10, and that the optical network has it's own set of provisioning tools and network

management applications (Metz: page 79, col. 2, top paragraph). The provisioning tools and network management applications are not described in detail; however it would have been obvious to one of ordinary skill in the art at the time of the invention to use a web menu for such provisioning tools and management applications, since HTML and web menu interfaces are well known for use as application interfaces for networks.

Regarding claim 12, the combination of Metz and Zhang et al. disclose the method of claim 10, wherein the step of determining compatibility comprises determining technology compatibility (Zhang et al.: section 3.4 "Optical Network Services" and section 3.4.1 "Light path creation" and the disclosed "user groups").

Regarding claim 13, the combination of Metz and Zhang et al. disclose the method of claim 10, further comprising using photonic switches as the multiple photonics cross-connect elements (Metz: page 78, section "Routing at the Optical Layer").

Regarding claim 14, the combination of Metz and Zhang et al. disclose the method of claim 13. Regarding the limitation that the service nodes comprise core routers or video servers, the specification discloses that the services nodes "can be core routers or video servers or any other appropriate element" (specification page 9, lines 1-3). This is not a closure of criticality for the limitation of service node type. Absent any teaching of criticality, the limitation of service node type would have been a result of obvious engineering design choice.

Regarding claim 15, the combination of Metz and Zhang et al. disclose the method of claim 13 further comprising providing multiplexers or edge routers as access nodes (Metz: fig. 2 "Overlay model" and page 79, section "Architectural Models").

Regarding claim 16, the combination of Metz and Zhang et al. disclose the method of claim 10, further comprising performing fault management for determining when an error has occurred in establishing a connection (Zhang et al.: section 6.1 "UNI Control Channel").

Regarding claim 17, the combination of Metz and Zhang et al. disclose the method of claim 10, further comprising forming a protocol agnostic private network provided that communicating nodes use an identical communication protocol (Metz: page 78, section "Routing at the Optical Layer" and Zhang et al.: section 4.2 "Optical Network Services", e.g. "closed user groups, or virtual private networks").

Regarding claim 18, the combination of Metz and Zhang et al. disclose the method of claim 10, wherein the step of registering network elements comprises collecting information including number of ports, wavelengths per port, and bandwidth per wavelength (Zhang et al.: section 6.4.1 "Lightpath Create Request" and section 6.4.2 "Lightpath Create Response").

9. Claims 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. ("Signaling Requirements at the Optical UNI"; Zhang et al.; Internet Draft, 14 July 2000; http://www.cse.ohio-state.edu/~jain/ietf/ftp/draft-bala-mpls-optical-uni-signaling-00.txt) in view of Metz ("IP Over Optical"; Chris Metz; IEEE Internet Computing, November-December 2000; http://www.cisco.com/warp/public/779/servpro/solutions/optical/docs/ip_optical2-01.pdf).

Regarding claim 20, Zhang et al. disclose the O-UNI server of claim 19, and disclose that the optical network with is comprised of OXCs and has O-UNI interfaces to clients (fig. 1 and section 3 "Introduction"), but do not disclose a web menu interface for a user. Metz disclose a similar OXC optical network with O-UNI interfaces to clients, where the optical network has its own provisioning tools and network management applications (fig. 2 and page 79, section "Architectural Models". Metz does not describe the provisioning tools and network management applications in details; however it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of Metz to the optical network Zhang

et al. in using a web menu for provisioning tools and management applications, since HTML and web menu interfaces are well known for use as application interfaces for networks.

Regarding claim 25, Zhang et al. disclose the O-UNI server of claim 19, but do not disclose details of accounting management tools for managing data associated with service usage. Metz discloses Optical UNI used as a client-network interface in a photonics switching system (fig. 2, "Overlay Model" and page 79, section "Architectural Models") and discloses Optical UNI providing the benefits of separate client and optical switching networks, and administrative control of billing for optical network circuit services (page 79, col. 3, middle paragraph). It would have been obvious to one of ordinary skill in the art at the time of the invention to use accounting management tools with the Optical UNI server of Zhang et al. to provide the benefit of administrative control of billing for the use of service with the optical network, as taught by Metz.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. ("Signaling Requirements at the Optical UNI"; Zhang et al.; Internet Draft, 14 July 2000; http://www.cse.ohio-state.edu/~jain/ietf/ftp/draft-bala-mpls-optical-uni-signaling-00.txt).

Regarding claim 26, Zhang et al. disclose the O-UNI server of claim 19, further comprising security management tools for managing allocation and authentication of access to the nodes (section 6.1, "UNI Control Channel"). Zhang et al. do not disclose managing node passwords, however, it would have been obvious to one of ordinary skill in the art at the time of the invention that preventing unauthorized access to the nodes, as taught by Zhang et al., would include managing node passwords, since password management as a form of access control is well known in the art.

Conclusion

11. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER